



# Application of concepts for Administrative Management

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**Abstract:** The article deals with the analysis and research of the problems related to the application of administrative management in modern organizations. The theoretical aspects and content of the concepts of "Quality Management - TQM", "Toyota Production System - TPS" and standardization are reviewed. Different positions of respectful scientists on the topic under consideration are presented and analyzed. A specific aspect of the theory related to administrative theory and its application in the management of modern organizations is presented.

**Key words:** quality management, lean production, production system, standardization.

In times of severe competition, high dynamics of the business environment and absence of effective restrictions, modern organizations are faced with completely different requirements and new challenges that force them to abandon the old management approaches and re-focus on radically new theoretical management concepts and interpretations corresponding to dynamic and technologically driven markets. Adaptation of the organization to modern requirements shall not be based on traditional knowledge and skills only. To survive and to grow, the organization shall make efforts to build core competencies and establish well-balanced business operations in line with the imperatives of the new business space. To cope with these tasks, modern concepts of administrative management, such as quality management and production system, have been developed and implemented on the basis of a strict system of standards.

## Total Quality Management - TQM

Successful organizations use enhancement programs based on management paradigms such as total quality control (TQC), total quality management (TQM), which evolved from the original just-in-time concept (JIT) (Al-Nsour 2017). In addition, total production maintenance (TPM) is increasingly spread to different countries around the world.

Total quality control (TQC) is characterized by the fact that it covers all stages of the organizational control process and links control with other management functions. The main goal of this method is massive and coordinated actions aimed at all processes of the organization to achieve the highest quality and continuously maintain this level. (Total Control 2022)

After World War II, the idea of total control began to operate in Japan and became successful as one of the main factors that made Japan one of the world leaders in production processes.

In the 1980s, quality control ideas were implemented in the development of a new comprehensive method called Total Quality Management (TQM). Its definition is quoted in the international standard ISO 8402-94: 'TQM is an approach to the management of an organization focused on quality, based on the participation of all its members and aimed at achieving long-term success through customer satisfaction and benefit for all members of the organization and society'.

According to Todor Hristov (Hristov, 2021): 'Quality management is a management approach to long-term success through customer satisfaction. Quality management efforts involve all members of the organization who participate in the continuous improvement of the processes, products and working environment'.

William Deming, Walter Schuhart, Kaoru Ishikawa, Joseph Juran, Philip Crosby, and Armand Feigenbaum made quality management popular among business circles in Japan and around the world. It is a philosophy where "quality" as a concept is taken beyond the boundaries of production. Quality is created at all levels of the organization.

The main components of TQM are: quality policy, quality planning, quality improvement, quality assurance and total quality control. At the core of universal quality management approaches lies a new, expanded product concept that includes, along with the finished products, an intellectual product, product of processing and services. This is reflected in the universal standards for enterprises of different industries, forms and specializations applicable in different countries.

The achievements of total quality management depend on the construction and maintenance of the so-called "quality improvement culture" in the organization, which facilitates progress in three main areas: external customers, internal customers, business processes.

Achieving such a quality improvement culture is possible provided that the main principles of total quality management are followed. According to Todor Hristov, these are: 1) Focus on the client; 2) Participation of all employees; 3) Focus on processes; 4) Continuous improvement; 5) Use of statistics in decision making.

The establishment of conformity with the requirements is performed by means of the control function, which is a

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set of activities measuring, inspecting, testing, checking one or more characteristics of an object and comparing them with the specific requirements in order to check whether the desired conformity has been achieved. To ensure that the products meet previously set requirements, the organization leadership shall take relevant operational and management actions for quality assurance. Quality assurance is a sum of all these planned and systematically executed actions. Major contributors to the development and application of this approach were Edward Deming, George Juran, Philip Crosby, Armand Feigenbaum, Kaoru Ishikawa, and Genichi Taguchi.

Edward Deming was a famous American thinker in the field of quality who used statistical methods in quality control and management. He is the author of the so-called "Deming Cycle", consisting of constantly repeating actions in the following sequence: plan - do - check - act. Deming viewed quality as a process. He described his views on quality management in his "14 Essential Duties of a Manager", which are known in scientific circles as "Deming's 14 Points for Management" (Radev, 2016). Through them, he put forward the leading role and responsibilities of enterprise management for quality management.

Quality management as a concept provides undeniable opportunities for organizations. Among the most important are: strong competitive position on the market; ability to adapt to changing market conditions; increased productivity; elimination of defects and losses; cost reduction and more efficient management; higher profitability; higher customer satisfaction; increased customer loyalty and retention; increased workplace security; improved employee morale; higher value for shareholders and other stakeholders; improved innovative processes (Hristov, 2022).

### Toyota production system - TPS

The idea of lean production is to account for and exclude from the production process all redundant material resources, actions and operations that are not directly involved in the creation of the new product, which means that they only harm the company by increasing the costs of production. Lean production, and of course TPS, treat everything that does not create value for the customer as waste and try to eliminate it. As TPS is culturally associated with Toyota, executives tend to think in the long term taking into consideration quality and delivering what customers want.

In the 1970s, the Japanese company Toyota enhanced the administrative management approach by developing its own system for administrative management of production known as the Toyota Production System (TPS), which was aimed at lean production.

Producing high-quality products is paramount to any manufacturing industry and shall therefore be given priority. In the case of the production of automobile parts, safety is considered particularly important. Taking shortcuts, doing bad work or putting a defective part on a

vehicle on the market is perceived as an anti-social act and can have devastating consequences for the company.

When we talk about TPS, we shall focus on two main elements - "Jidoka" which means automation with human intervention, and "Just-In-Time" production method which focuses on producing what is needed, when is needed, and in the quantity needed.



Fig. 1. Elements of TPS (source TOYOTA PRODUCTION SYSTEM. A system or a philosophy? [https://www.researchgate.net/publication/312213247\\_TOYOTA\\_PRODUCTION\\_SYSTEM\\_A\\_system\\_or\\_a\\_philosophy](https://www.researchgate.net/publication/312213247_TOYOTA_PRODUCTION_SYSTEM_A_system_or_a_philosophy))

Toyota's production system aims at achieving the best quality at the lowest possible cost, while being precise and prompt in its deliveries to customers. As seen in Figure 1, Just-In-Time and Jidoka act as two pillars of Toyota's production system. Just-In-Time and Jidoka will be discussed separately below.

Just-In-Time concept (Hristov S., 2022) – only what is needed is produced, only when it is needed and only in the quantity needed.

Just-in-time production is an economical method of production, and is a key practice when it comes to implementing TQM, as it also reduces the cost and time involved in production. Just-in-time ensures efficiency at the entire production level, reduces time and risks of errors.

Jidoka concept (Hristov S., 2022) – automation, i.e. bringing human intelligence into machines capable of autonomously detecting the first defect, stopping immediately and signaling that a problem has occurred. Jidoka's TPS principle embeds quality checks into every step of the production process.

### Leveling production - Heijunka

Heijunka, the core of the just-in-time concept from a production system perspective, aims to reduce inventory



costs, as a result of which the required parts will arrive at the production level only when they are needed and in the right quantity. This ensures that the product is produced when it is needed, in the required quantities, and spare parts arrive only at the right time in the right quantity. Heijunka also contributes to overall production quality and safety by eliminating unnecessary effort.

#### **Eliminating waste - Muda**

Muda refers to waste in any form that does not add any value to the final product. Muda can include overproduction, inefficient inventory maintenance, wasted time due to errors, and waiting.

#### **Takt time**

Time has a direct impact on efficiency, whether we mean production, services or our personal lives, and time planning is very important in TPS. To achieve efficiency, a company must produce only when something is in demand and in the right quantity to avoid producing too little or too much. Takt time and heijunka refer to the ability of a company to be flexible according to demand and to ensure that the process is smooth, continuous and measurable.

#### **Kanban Board**

Using this system, an employee can request more parts at the production phase when needed, which ensures that minimum inventory is maintained. Thus, stocks are replenished on a just-in-time basis, right at that moment. In TPS, this means having the right components to build the product.

#### **Kaizen**

Kaizen is a process of continuous perfection in Toyota's culture, where everyone who works in the company is constantly looking for ways to improve. Employees are encouraged to share their views to achieve better results. At Toyota, applying the Kaizen philosophy, everyone is encouraged to share information at all times and report not just to one boss, which helps ideas get noticed more easily. The 5 Whys are an important Kaizen practice that enables better root cause identification, leading to better problem solutions.

One of the management tools characteristic of the Toyota production system is teamwork. The importance of teamwork is embodied in Toyota's tenth principle - "Creating teams of exceptional people who follow the company's philosophy". The wording of this principle is not accidental.

What is specific about Toyota's (Hristov S. 2022) teams and organizational environment, which is practically the essence of their production system, is that the teams in the respective production units monitor quality, labor productivity, equipment maintenance, and time reduction for manufacturing of the product. Moreover, these teams are placed at the top of the company hierarchy. This is related to a cultural feature and value at Toyota, namely bringing to the fore the added value for the customer. The

teams at Toyota are empowered to create exactly this added value.

The work of team members at Toyota is highly standardized. Each team at Toyota is constantly tasked with solving the problem of improving the three elements of the standard: "Takt time", sequence of work, quantity of stock. Teams are authorized to carry out typical managerial work in practice. Specifically, it is the teams at Toyota who are constantly thinking about, proposing and developing improvements in work standards.

At the same time, Toyota team managers perform routine quality checks, ensure compliance with standards, facilitate (support) the team's work to improve and refine standards and processes, provide parts (inventories) for the team to meet the time standard, replace workers who are absent from work, etc.

Group team leaders, in turn, plan monthly production, work and vacation schedules, analyze the results of routine quality inspections, participate in project teams to improve the production process and reduce costs, ensure safe working conditions, coordinate overhauls, support the professional development of the teams (Hristov S. 2022).

By building a team spirit, Toyota aims to motivate its employees to embrace the company's values, work style and lifestyle. This approach meets employees' needs for belonging, growth and recognition, which gives them the confidence and self-esteem to develop and improve as individuals.

At the core of Toyota's results and its production system lie the management principles that shape its company culture and are a prerequisite for creating quality and achieving efficiency (Hristov S. 2022).

The principles of the Toyota Production System were analyzed and summarized by Jeffrey Liker\*. He divided Toyota's management principles into four categories (Hristov T. 2022) and arranged them in the form of a pyramid: philosophy, process, staff and partners, problem solving. The Fourteen Toyota Management Principles (Hristov T. 2022) focus on management decisions based on a visionary philosophy; using the concept of total quality management; standardization of tasks, processes and work; teamwork.

#### **Standardization**

In a continuous improvement process (Lean-production, Kaizen), standardization is seen as the voluntary definition or formalization of work methods, as well as its consequences, according to a clearly agreed scheme of activities for the future, carried out by the employees themselves. The idea is to involve employees in the improvement process by participating in the development of standards. Planners, managers, and contractors will then work together to develop and optimize work methods.

The standard is a document that, for the purpose of reuse, establishes the product characteristics, performance rules and design features (including studies), production, construction, installation, adjustment, operation, storage, transportation, sale and disposal, performance of work or services.

The purpose of standardization is (Shishmarev 2016):

1) to increase the level of safety: life and health of citizens, property of individuals and legal entities, state and municipal property, in the field of ecology, objects, taking into account the risk of natural disasters and other emergency situations caused by man;

2) to preserve: competitiveness of products, activities, services; scientific and technical progress; rational use of resources; compatibility and interchangeability of technical means (machines and equipment, their components, components and materials); information compatibility; comparability of the results of research (tests) and measurements of technical and economical and statistical data; comparative analysis of product characteristics; government procurement, introduction of innovations; confirmation of conformity of products (activities, services); resolution of arbitration disputes; court decisions; deliveries.

3) to create systems: classification and coding of technical, economic and social information, product classification, product quality assurance, data extraction and transmission; as well as evidence and conditions for fulfilling the requirements of the technical regulations.

Standardized operations are the most popular method of performing specific operations. Using the principles of workplace organization and visual management ensures that the most effective method is applied.

The analysis illustrates that there is a direct link between the administrative management system in an organization, the quality of products or services within the concept of "quality management" and, accordingly, the standardization in the implementation of management processes.

The improvement of managed processes within the framework of the administrative management system is the foundation for the quality system in any organization. Apparently, this is only the basis, but not the quality system itself, as is sometimes wrongly believed. The use of modern administrative management shall precede the establishment of a quality management system.

Companies implementing the administrative management system and the "quality management" concept based on certain standards acquire an effective organizational mechanism that guarantees high productivity and competitiveness.

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